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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/757,202 | 01/14/2004 | Tung-Ching Tseng | 2002-0350/24061.484 | 3558 |

42717 7590 02/07/2006

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| EXAMINER |
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DEO, DUY VU NGUYEN

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| ART UNIT | PAPER NUMBER |
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1765

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/757,202

Applicant(s)

TSENG ET AL.

Examiner

DuyVu n. Deo

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6,8-10,13 and 15-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3,6,8-10 and 13 is/are allowed.
- 6) ☒ Claim(s) 15-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee.

Lee describes a method for polishing a shallow trench isolation substrate comprising: providing a substrate having a plurality of patterned regions; polishing the substrate with a first slurry until partial planarization occurs; continuing to final polishing with a second slurry (fig. 5; paragraphs [0088-0089]). Experimental example 1 shows that the APC concentration can be added, depending on desired removal rate of oxide layer, from 0.2 to 1.2 wt% where a 0.4-0.8 wt% has a higher selectivity ratio, than 0.2 wt%. Therefore, wherein a first planarization slurry contains 0.2 wt% of APC, the second slurry would have 0.4-0.8 wt% of APC in order to have a high selectivity ratio as suggested by Lee.

Unlike claimed invention, Lee doesn't describe the initial polishing comprises a control of polishing time so as to avoid over-polishing of a stop layer. However, he suggests leaving some of the polished oxide layer on the polishing stop layer (paragraph [0088]). Therefore, one skilled in the art at the time of the invention would find it obvious to control the polishing time in order to leave some of the polished oxide layer on the polishing stop layer.

Referring to claims 18, 19 the first and second slurry has 0.5-2.0 w% of ceria such as 1.0 w% (paragraph [0063]; claim 11).

Referring to claim 17, the polishing stop layer includes silicon nitride (paragraph [0077]).

Response to Arguments

3. Applicant's arguments filed 11/23/05 with respect to claims 15-19 have been fully considered but they are not persuasive.

4. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Lee fails to disclose carrying out two different planarizations that use the same slurry, but in different concentration) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Also, it is obvious that the two slurries are not the same since they have different concentrations of composition.

Experimental example 1 shows that the APC concentration can be added, depending on desired removal rate of oxide layer, from 0.2 to 1.2 wt% where a 0.4-0.8 wt% has a higher selectivity ratio, than 0.2 wt%. Therefore, wherein a first planarization slurry contains 0.2 wt% of APC, the second slurry would have 0.4-0.8 wt% of APC in order to have a high selectivity ratio as suggested by Lee. This would create a second slurry with a more concentration of APC and read on claimed a more concentration composition of the slurry.

5. Applicant's arguments see remarks, filed 11/23/05, with respect to claims 1-3, 6, 8-10, 13 have been fully considered and are persuasive. The rejection of these claims has been withdrawn.

Allowable Subject Matter

6. Claims 1-3, 6, 8-10, 13 are allowed because applied prior art, Lee, doesn't suggest wherein said initial slurry comprises a diluted ceria-based slurry with the composition that ranges from 0.5 wt. % to 1.0 wt. % ceria and wherein said second slurry comprises a ceria-based slurry with composition ranging from 1.0 wt. % to 2.0 wt. % ceria said initial slurry and said second slurry having different concentration of ceria. Lee, in claim 11, suggests the first and second slurry contain same abrasive concentration.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n. Deo whose telephone number is 571-272-1462. The examiner can normally be reached on 6:00-2:30 Mon-Fri.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Primary Examiner

Duy-Vu N. Deo

1/31/06

